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(54) Image processing apparatus

(57) An image processing apparatus is capable of detecting position and posture of individual workpieces randomly arranged in a pile and having identical shapes. Reference models are created from two-dimensional images of a reference workpiece captured in a plurality of directions by a camera and stored. Also, the relative positions/postures of the workpiece with respect to the camera at the respective image capturing are stored. An image of a pile of workpieces is captured by the camera to obtain a two-dimensional image and the position/posture of the camera at the image capturing is stored. An image of a workpiece matched with one reference model is selected by matching processing of the reference model with the captured image. A three-dimensional position/posture of the workpiece with respect to the camera is obtained from the image of the selected workpiece, the selected reference model and position/posture information associated with the reference model. A picking-up operation for picking out a respective workpiece from a randomly arranged pile can be performed by a robot, based on the position/posture of the workpiece.

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The present search report has been drawn up for all claims

Place of search	Date of completion of the search	Examiner
MUNICH	15 May 2003	Borotschnig, H

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